

Related Factors Research on Stock Price Premium of A Shares and H Shares Dual-Listed Companies

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Abstract

The premium between Shanghai and HongKong stock price had been existing in dual listed companies for a long time. This paper is based on the policy of Shanghai-Hong Kong Stock Connect program which began on November 27, 2014, and made an empirical research on the premium rate. We selected 63 stocks related to the program, collected daily data from January 4, 2012 to December 30, 2015, including 940 days. With the liquidity differences, risk preference differences and influence of information asymmetry serve as explanatory variables, the exchange rate of HongKong dollar serve as control variables, the program serve as virtual variables, we built regression model. Regression results show that the liquidity difference, risk preference difference, the difference of information asymmetry, and the exchange rate can significantly impact on the premium rate. Among them, the risk preference difference shows a negative correlation, the rest shows the opposite correlation.

Key words: *dual listed company; premium rate; the Shanghai-Hong Kong Stock Connect program*

1 Introduction

On July 15, 1993, Tsingtao Beer successfully listed on the Hong Kong stock exchange, and listed its shares on the Shanghai stock exchange on August 27, became China's first Cross Listed Company in Mainland. After that, many corporations in different industries were listed both in Shanghai and Hong Kong stock exchange. As of March 2, 2016, a total of 89 companies in China became Cross Listed Companies on Chinese and Hong Kong stock market. According to the law of one price, if the same assets in different market without geography, policy interval, should have a consistent price, otherwise there will be arbitrage opportunity. Arbitrageurs will use the spread to arbitrage, until the price difference disappear. However, for Cross Listed Companies in China, the difference in delisting, transaction system, investor structure, government regulation lead to the premium rate for the same company in different stock markets. The problem has caused a wide attention of academia, but there is no clear explanation so far. In November 2014, Chinese government started the Shanghai-Hong Kong Stock Connect program, the qualified investors were permitted to invest in other stock market, which may impact the premium rate between the markets.

This paper studies the influence factors of premium rate, combined with data before and after the program, analyze how the program impact on Cross Listed Companies in Shanghai and HongKong stock exchange. In this paper, the main innovation points are the following three points: (1) selection of GARCH daily volatility as the interpretation of the risk preference difference data, can fit the daily spread in a better way; (2) in this paper, we used the exchange rate as the control variable, which is necessary at the moment of the RMB and

Hong Kong dollar exchange rate is unstable; (3) this paper selected the daily data from 2012 to 2015 is relatively new.

2 Research review

2.1 The main foreign research results

Dual listing of the company's stock price problems has existed for a long time, foreign investors and scholars began to pay close attention to this problem in the 1980's, and conducted an in-depth study.

After researching capital markets in developed and developing countries for a long time, scholars believe that the following three differences had a significant effect on the price cross listed companies. The first one is the liquidity difference, in the stock market, liquidity is the character which an asset can be realized at a reasonable price smoothly, the main performances are discretion of the transaction costs, the length of time, and whether block trade can clinch a deal. Amihud and Mendelson¹ argues that illiquid stocks must have a higher expected return to compensate investors increased transaction costs, so the stock price is low. The second one is risk preference caused by different investors structural, retail investors who take a large proportion of the mainland market, which lead to a unstable market, which make a lower prices. Ma² conduct an empirical analysis on premium between A (local investor market) and B (foreign investor market), and concluded that the beta of local market is related with the premium, and put forward conclusions of the mainland investors is speculative. Information asymmetry is the third difference, Dahlquist and Robertsson³ research has shown that for overseas investors, large corporate information is more accessible, the impact of information asymmetry is smaller, make the risk compensation caused by asymmetric information is less than small companies, cause the stock price is on the high side., Chen, Lee and Rui⁴ empirical analyzed the three hypothesis in one model, the results showed that the liquidity hypothesis has the most explanatory power to the AB price difference problem.

2.2 The Main Foreign Research Results

The phenomenon of premium rate, which happened both in A + B cross-listing companies and A + H cross-listing companies, many scholars study on it in the recent years. In terms of research method, foreign existing methods has been widely used.

W.S.Qin and Y.H.Wang⁵ studied the spread between A and B market with the panel data of 33 companies daily trading from 1996 to 1999, by using three stochastic models. The research results show that the market segmentation, information asymmetry and differences in investment concept can explain the spread between A and B market. Z.H.Hu and X.K.Wang⁶ used model with fixed effect panel data of 51 enterprises, the results show that both market volatility and interest rate change has significant effect on the premium rate between A and H, structure of the investors and corporate governance structure have less effect on the spread. S.S.Ba⁷ added the exchange rate forecast variables to his model. Use Hansen's endogenous threshold panel regression model, and make the empirical analysis for A + H stock price difference and the relationship between the exchange rate, the empirical results show that the exchange rate expectations affect the premium rate, and the relationship between exchange rate expectations and the premium rate is nonlinear.

3 Theoretical assumption

In this paper, we study in the influence of the program to the premium rate, so we make the premium rate as the dependent variable. The spread is the same company closing price in Shanghai market minus the price of Hong Kong market on the same day divide by closing price of Hong Kong. Formula as follows:

$$Premium_{i,t} = \frac{P_{i,j}^A - P_{i,j}^H}{P_{i,j}^H}$$

According to the previous results and personal analysis, this article selects the following variables as explanatory variables.

3.1 Liquidity difference

Liquidity difference is one of the important reasons of the premium. In the stock market, trading volume can clearly reflect the degree of liquidity of the stock. Large trading volume stocks can be traded in short time with few transaction cost, and stocks with less trading volume, suffer higher liquidity risk, to compensate for the risk, the rate of return will increase, resulting in a decline in stock prices. So the increase of ratio of the volume may increase the premium rate.

$$Volume_{i,t} = \frac{volume_{i,t}^A}{volume_{i,t}^H}$$

3.2 Information asymmetry

Information asymmetry tends to make the foreign investors demand higher returns to compensate the risk, which lead to a lower stock price. Because the larger enterprises' information disclosure is comprehensive and concerned by more investors, the information is more transparency, also easy to gain. If enterprises' market value in Shanghai is larger, compared to Hong Kong investors, investors from the mainland are easier to receive exact information, who will make information earlier to show in the stock market. The ratio of the current market value, therefore, may have a positive correlation with the premium rate.

$$Size_{i,t} = \frac{size_{i,t}^A}{size_{i,t}^H}$$

3.3 Risk preference

Investors in mainland mainly are individual investors, but institutional investors in HongKong market. The individual investors accounted for 40% to 50% of investors in Shanghai from 2012 to 2015, only 20% to 30% in HongKong at the same time. Difference in investor structure result in distinction in risk preference. In general, individual investors prefer short-term investments, hope to make profit by short-term capital gains, their judgment is on the basis of simple technology analysis or Chase sell; institutional investors focus on company fundamentals on the one hand, comprehensively analyze the development potential of company, and then invest in the company over a long period of time, on the other hand with the development of information technology and computer technology, an increasing number of institutional investors take the method of quantitative trading, which makes abnormal

fluctuations in the markets will be captured quickly by trading system, and respond to. And constrained by the lack of financial instruments and immaturity of the investors, few investors in the mainland used this technology, lead to great fluctuation in the market. In the traditional capital asset pricing model, risk assets return rate is higher with the larger volatility, which leads to lower stock prices. Thus, there may be a negative relationship between ratio of the volatility and the premium rate.

$$Volatility_{i,t} = \frac{volatility_{i,t}^A}{volatility_{i,T}^H}$$

The Volatility is the GARCH daily volatility of company i on the day t, the calculation method is as follows:

$$r_t = \sqrt{h_t} e_t \quad h_t = \alpha_0 + \alpha_1 r_{t-1}^2 + \beta_1 h_{t-1} \quad e_t \sim iidN(0,1)$$

Garch method can estimate stocks' daily volatility at some level, and has certain prediction ability over a period of time in the future.

3.4 Exchange rate

With the further opening of domestic financial environment, China has carried on the exchange rate reform since June 2010, after the reform, RMB appreciated rapidly. Though the exchange rate is still under control, but its elasticity increased, exiting from dollar-pegged exchange rate system. While Hong Kong's exchange rate policy is dollar peg, the change trend of the Hong Kong dollar and the dollar is similar. In 2015, under the influence of interest rate rise in the US, the exchange rate of RMB even HK dollar have a high fluctuation. In the stock market, the exchange rate has a complicated influence on the premium rate. On the one hand, cross-listings enterprise basically share out bonus with RMB, if there is expectation of RMB appreciation, according to the dividend model, the stock prices in Hong Kong market would rise correspondingly, which will decrease the premium rate; on the other hand, the premium rate equal to the stock price in Shanghai divided by price in HongKong measure in RMB, if the price remains unchanged, the appreciation of the RMB would lead to an increase in the premium rate. To sum up, the relationship between exchange rate and the spread is not certain.

3.5 Dummy variable

This paper focuses on exploring the influence of the Shanghai-Hong Kong Stock Connect program, therefore, we constructing dummy variable to analyze. The value of the variable before the program start on November 17, 2014 is 0, the value after that is 1.

4 Experimental Test

Base on the above variables, we built the regression model as follows:

$$Premium_{i,t} = \beta_0 + \beta_1 Volume_{i,t}(+) + \beta_2 Size_{i,t}(+) + \beta_3 Volatility_{i,t}(-) + \beta_4 exchange\ rate(?) + \beta_5 dummy$$

Until December 30, 2015, the number of cross-listing companies is 89. Because this paper studies on how the Shanghai-Hong Kong Stock Connect program affected the premium rate, so eliminated companies listed in Shenzhen stock exchange, and then eliminate the stock that had the premium rate less than two years or suspended trade for a long time, this paper selects

the 63 stocks as the research object. Due to the program is started on November 17, 2014, to emphasize the influence of the program, this paper selects data from January 4, 2012 to December 30, 2015 as samples, excluding all the holidays and festivals in Shanghai and HongKong, there is 940 daily data remained. Data sources include: Flush financial terminal, Eastmoney Choice database and RESSET database

By using descriptive statistical analysis, the results in TABLE 1

Table 1 –The descriptive statistic results of full sample

	Premium	Volume	Size	Volatility
Average	0.67	5.93	4.07	0.97
Median	0.40	2.20	3.52	0.90
Standard deviation	0.86	26.60	2.90	0.47
variance	0.74	707.52	8.43	0.22
kurtosis	6.09	9938.07	3.21	5.48

The result of TABLE I shows that the average of the premium rate is greater than zero, shows the price in A-share market is higher than price in H-share in whole. The mean of volume ratio and the ratio of the current market value of is larger than 1, shows that the liquidity and the information propagation in a-share market can meet the needs of investors better. In addition to trading volume, the standard deviation of all variables are small, shows a relatively dense sample. In the term of kurtosis, all the variables are more than 3, explain the sampling results relatively steep.

Analyze with the model with the 63*940 panel data, the results in TABLE 2

Table 2 –The regression results of full sample

	Coefficient	The value of T
Volume	0.001579	13.05735
Size	0.108993	95.69091
Volatility	-0.040535	-5.113647
Exchange rate	7.356544	28.11156
Dummy	0.306825	37.68588
R2	0.209105	
F	3073.319	

As shown in figure, the goodness-of-fit is 0.20, maybe caused by the large amount of data and using of individual stocks data, the fitting degree is not high. Results with all the variables are significant, shows that liquidity difference, information asymmetry, risk preference and exchange rate has significant effect on the premium rate. And correspond to the hypothesis, the ratio of the volume, the ratio of the current market value positively related to the premium rate, the ratio of the daily volatility and the spread is an inverse relationship. The relationship between exchange rate and the spread is positive, possibly because of the dividend effect. The T testing has proved the signification of the dummy variable, also shows the program has positive influence on the premium rate. That means with the initiation of the program, the premium rate is higher, probably caused by the soaring and slumping prices in A-shares.

5 Conclusion

In this article, we combined domestic and abroad research results in premium rate of dual listed companies, put forward four factors which might influence the spread in Shanghai stock exchange and HKEX. In order to find out how the program affect the premium rate, we make a panel data with 63 companies listed on the 940 days, make a regression analysis and analyze the results.

Analysis results show that liquidity difference, information asymmetry, risk preference and exchange rate has significant effect on the premium rate. Liquidity positively relate to the spread. The low liquidity risk, leads to a low risk premium yield, which will make the price higher. The ratio of market value is also significantly relate to the spread, in market circulation market value is larger (usually the a-share market), because of the higher attention by public, people easier access to the market information, the risk of information asymmetry is lower, causing the price in this market rise. There's a significantly negative relationship between the ratio of the volatility and the spread, if the volatility is higher in the market, investors will ask for a higher risk compensation, which will lead to a fall in share price, but it will not that effective in a unstable market. In terms of exchange rate, the results with the spread is also positive relationship, may be related to the expected appreciation of the RMB or the dividend model. To sum up, the liquidity differences, risk preference differences, influence of information asymmetry and exchange rate are the main factors that caused the premium rate in Shanghai stock exchange and HKEX. The program also changed the spread significantly with a decline in the importance of risk preference difference.

References

1. *Y. Amihud and H.Mendelson*, Asset Pricing and the Bid-ask Spread. *Journal of Financial Economics*. **17**(1986) 223—249.
2. *X. Ma*, Capital Controls, Market Segmentation and Stock Price: Evidence from the Chinese Stock Market. *J. Pacific-Basin Finance Journal*. **4**(1996) 219—239.
3. *D. Robertson*, Direct foreign ownership, institutional investors, and firm characteristics. *Journal of Finance Economics*, **59**(2001) 413-440
4. *G.M. Chen, B.S. Lee , and O.Rui*, Foreign Ownership Restrictions and Market Segmentation in China's Stock Markets, *Journal of Financial Research*.**24** (2001) 133—155.
5. *W.S. Qin, Y.H. Wang*, Research on the factors affecting stock price premium of A shares and B shares, *Quantitative & Technical Economics*. **5**(2000) 15-18
6. *Z.H. Hu, X.K. Wang*, Research on the factors affecting stock price premium of A shares and H shares, *Economic Research*. (2008) 119-131
7. *S.S. Ba ,Y.Q. Zhu and T. Gu*, Research on the factors affecting stock price premium of A shares and H shares after the share reform, *Contemporary Finance & Economics*, (2008) 51-56